WHAT IS CLAIMED IS:

1. A three-dimensional image optical system comprising an elementary image optical subsystem that includes plural afocal optical elements placed in a planar array to form an elementary image optical subsystem, wherein

each of said afocal optical element has a first optical component and a second optical component both aligned in such a distance that an optical convergence area of said first optical component and optical convergence area of said second optical component spatially coincide.

2. A three-dimensional image optical system according to Claim 1, wherein

said first optical component and said second optical component both aligned in such a distance that said first optical component and said second optical component are aligned in a common optical axis in which optical focal points of said first optical component and said second optical component coincide.

3. A three-dimensional image optical system according to Claim 2, wherein

a focal length of said first optical component and a focal length of said second optical component are different.

4. A three-dimensional image optical system according to Claim 2, wherein

said first optical component has a convergent focal length and said second optical component has a virtual focal length.

5. A three-dimensional image optical system

according to Claim 1, wherein

at least one of said first optical component and said second optical component is a radial graded refractive index rod lens.

6. A three-dimensional image optical system according to Claim 5, wherein

optical length Z_u of said first optical component is in a range of $0<Z_u<P/2$ and different from optical length Z_u of said second optical component which is in a range of $0<Z_u<P/2$ where a normalized meridional serpentine period $P = 2\pi/A^{1/2}$ is defined by optical property parameter A of said first and second optical components.

7. A three-dimensional image optical system according to Claim 5, wherein

optical length Z_u of said first optical component is in a range of $0<Z_u<P/2$ and optical length Z_u of said second optical component is in a range of $P/2<Z_u<P$ where a normalized meridional serpentine period $P = 2\pi/A^{1/2}$ is defined by optical property parameter A of said first and second optical components.

8. A three-dimensional image optical system according to Claim 1, wherein

said first optical component and said second optical component are both held with an optical gobo element.

9. A three-dimensional image optical system according to Claim 2, wherein

said first optical component and said second optical component are both held with an optical gobo element.

10. A three-dimensional image optical system according to Claim 5, wherein

said first optical component and said second optical component are both held with an optical gobo element.

11. A three-dimensional image optical system according to Claim 1, wherein

even quantity of said elementary image optical subsystems, which are placed in a series with distances so that an image reproduced by a foreside elementary image optical subsystem locates before a subsequent elementary image optical subsystem, are employed.

12. A three-dimensional image optical system according to Claim 2, wherein

even quantity of said elementary image optical subsystems, which are placed in a series with distances so that an image reproduced by a foreside elementary image optical subsystem locates before a subsequent elementary image optical subsystem, are employed.

13. A three-dimensional image optical system according to Claim 5, wherein

even quantity of said elementary image optical subsystems, which are placed in a series with distances so that an image reproduced by a foreside elementary image optical subsystem locates before a subsequent elementary image optical subsystem, are employed.